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Edward Barocela

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EXAMINER

DINH, TIEN QUANG

ART UNIT

PAPER NUMBER

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Please find below and/or attached an Office communication concerning this application or proceeding.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-6, 9, 16, 17-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Liu et al 6923404.

Liu et al teaches a missile (that can transition to supersonic speed, hence includes transonic speed) having a fuselage member 220, engine, wing actuator 240 to allow the oblique wing 230 to have a sweep angle of less than 90 degrees at transonic flight, and is launched from an aircraft. The wing members also form a bi-wing configuration (wings at the lower surface, see figure 3) and are attached to the fuselage at the midpoint of the wing member.

Re claim 5, since the wing is pivoted to a deployed position, the wing will have a sweep angle of 30 to 40 degrees during the deployment.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 3644

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7, 8, 10, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al 6923404.

Liu et al teaches all claimed subject matters but is silent on certain claimed characteristics of the aircraft. Although, it is not disclosed, the wings of Liu et al appear to have an aspect ratio of less than 7.0. Plus, wings having aspect ratio of less than 7.0 are well known in this day and age that one skilled in the art can use to make the missile operate more efficient. The applicant seems to have not described the criticality of less than 7.0.

Re claim 7, it is obvious to one skilled in the art to have attached the wing of Liu et al at one-quarter chord so that the missile can have certain flight characteristic to accomplish its mission. The applicant has not included the criticality of such claimed subject.

Re claim 8, it is obvious to one skilled in the art to have made the fuselage member of Liu et al at any size since this merely involves routine steps one skilled in the art would have taken to accomplish certain missions that do not require bigger missiles.

As for the transonic flight for at least 30 minutes, this is a design step one skilled in the art would have applied to Liu et al's system (by adding more fuel for example) to allow the missile to hit the target quickly and efficiently.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al 6923404 in view of admitted prior art on page 7 or Harris et al.

Art Unit: 3644

Liu et al discloses all claimed parts except for the use of snubbers. However, the admitted prior art or Harris et al teaches that snubbers are well known to be used to reduce vibrations.

It would have been obvious to one skilled in the art at the time the invention was made to have used snubbers in Liu et al's system as taught by admitted prior art on page 7 or Harris et al to reduce vibration.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al in Fink et al 2423090.

Liu discloses all claimed parts except for the antenna that is within/on the wing and is substantially along the entire length of the wing. However, Fink et al teaches that antenna that spans substantially the length of the wing.

It would have been obvious to one skilled in the art at the time the invention was made to have used an antenna that is attached to substantially the entire length of the wing in Liu's system as taught by Fink et al to receive and transmit data if need be. Applicant has not provided the criticality to the antenna being within or on the wing.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al 6923404 in view of Cohn.

Liu et al discloses all claimed parts except for the wound, spring-loaded actuator. However, Cohn teaches that wound, spring-loaded actuators are well known to pivot an object.

Art Unit: 3644

It would have been obvious to one skilled in the art at the time the invention was made to have used wound, spring-loaded actuators in Liu et al's system as taught by Cohn as a substitution of parts to allow a more resilient actuator to pivot the wing.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al 6923404 in view of Schroppel.

Liu et al discloses all claimed parts except for fins being pivotable. However, Schroppel teaches fins that pivots are well known to pivot an object.

It would have been obvious to one skilled in the art at the time the invention was made to have use fins that pivot in Liu et al's system as taught by Schroppel to make the missile more maneuverable.

Claims 1-10, and 16-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen 6669137 in view of Liu.

Chen '137 teaches a missile that has a fuselage member, engine (that is capable of thrusting to transonic speed), wing actuator that pivotally adjust the wing (attached to the upper and lower part of the fuselage, see figures) that is aligned with the fuselage and swings out to a sweep angle after the wing is deployed. The angle is less than 90 degrees. The midpoint of the wing is where the wing is attached to the fuselage. Chen '137 is silent on the wings being oblique. However, Liu teaches that oblique wings are well known and has certain aerodynamic advantages when flying at certain speed are well known in the art.

Art Unit: 3644

It would have been obvious to one skilled in the art at the time the invention was made to have used oblique wings in Chen '137's system as taught by Liu to allow increase aerodynamic efficiency at higher speed.

Although, it is not disclosed, the wings of Chen '137 appear to have an aspect ratio of less than 7.0. Plus, wings having aspect ratio of less than 7.0 are well known in this day and age that one skilled in the art can use to make the missile operate more efficient.

Re claim 7, it is obvious to one skilled in the art to have attached Chen '137's wings at one-quarter chord so that the missile can have certain flight characteristic to accomplish its mission. The applicant has not included the criticality of such claimed subject.

Re claim 5, the wing sweeps at angle of 30 to 40 degrees during the deployment if desired. The sweep angle can be at any desired angle to have a more effective flying missile.

Re claim 8, it is obvious to one skilled in the art to have the fuselage member any size since this merely involves routine steps one skilled in the art would have taken to accomplish certain missions that do not require bigger missiles.

Please note that a speed of Mach .9 is a design step one skilled in the art would have taken in Chen's system to allow the missile to hit the target quickly and efficiently.

The transonic flight for at least 30 minutes is a design step one skilled in the art would have taken to allow the missile to hit the target quickly and efficiently.

Art Unit: 3644

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen '137 as modified by Liu, as applied to claim 1 above, and further in view of admitted prior art on page 7 or Harris et al.

Chen '137 as modified by Liu discloses all claimed parts except for the use of snubbers. However, the admitted prior art or Harris et al teaches that snubbers are well known to be used to reduce vibrations.

It would have been obvious to one skilled in the art at the time the invention was made to have used snubbers in Chen '137's system as taught by admitted prior art on page 7 or Harris et al to reduce vibration.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen '137 as modified by Liu, as applied to claim 1 above, and further in Fink et al 2423090.

Chen '137 as modified by Liu discloses all claimed parts except for the antenna that is within the wing and is substantially along the entire length of the wing. However, Fink et al teaches that antenna that spans substantially the length of the wing.

It would have been obvious to one skilled in the art at the time the invention was made to have used an antenna that is attached to substantially the entire length of the wing in Chen '137's system as taught by Fink to receive and transmit data if need be.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen '137 as modified by Liu, as applied to claim 1 above, and further in view of Cohn.

Chen '795 as modified by Liu discloses all claimed parts except for the wound, spring-loaded actuator. However, Cohn teaches that wound, spring-loaded actuators are well known to pivot an object.

It would have been obvious to one skilled in the art at the time the invention was made to have used wound, spring-loaded actuators in Chen '137's system as modified by Liu and as taught by Cohn as a substitution of parts to allow a more resilient actuator to pivot the wing.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen '137 as modified by Liu, as applied to claim 1 above, and in further view of Schroppel.

Chen '137 as modified by Liu discloses all claimed parts except for fins being pivotable. However, Schroppel teaches fins that pivots at the end of the fuselage are well known.

It would have been obvious to one skilled in the art at the time the invention was made to have Chen '137's fins pivot as taught by Schroppel to make the missile more maneuverable.

Response to Arguments

The examiner respectfully disagrees with the applicant's assertion that the applicant has pointed out the errors in the restriction. The applicant did traverse the restriction but has not provided any arguments why the restriction was in error. The applicant only responded to claims 1 and 16 are generic. The examiner agrees and thus claims 1 and 16 were examined. The restriction is final.

The examiner has used newly cited arts to reject the amended claims. This renders applicant's arguments moot.

Art Unit: 3644

The examiner has cited Fink et al to show that antennas in wings are well known. Please note that less than 90 degrees is relative. The claimed invention did not claim 90 degrees with respect to a point or direction and hence 90 degrees can be in another position. The applicant seemed to object to the Examiner's assertion that criticality has not been disclosed. The applicant has not submitted any arguments/reasons why one quarter chord attachment is critical but merely just objecting to the Examiner's assertion.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tien Dinh whose telephone number is 571-272-6899. The examiner can normally be reached on 9-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Teri Luu can be reached on 571-272-7045. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TD

Handwritten signature of Tien Dinh, consisting of the letters 'Tien' followed by a stylized 'Dinh'.